Attorney's Docket: 1997DE419/DIV/C
Serial No.: 10/748,011
Art Unit 1713
Response to Office Action of August 9, 2004

REMARKS

The Office Action mailed July 8, 2003 has been carefully considered together with each of the references cited therein. The amendments and remarks presented herein are believed to be fully responsive to the Office Action. Accordingly, reconsideration of the present Application in view of the following remarks is respectfully requested.

Applicant has amended the Application to attend to housekeeping matters and to more clearly describe the invention. Claim 13 was amended to correct an obvious typographical error in reciting the upper limit of the melt viscosity. The upper limit now recited is - -10,000- -. Support for the amendment to claim 13 may be found in Applicant's Specification in paragraph [00043] (See page 8. lines 16-21). Claim 13 and its dependencies were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The rejection of claim 13, as amended, and its dependencies under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement should be withdrawn for the reason that claim 13 now recites 10,000 mPas as an upper limit to the viscosity measured at 140 °C, which is disclosed in Applicant's Specification and does comply with the written description requirement. In claims 14 and 15 the recitation of a preferable narrow range together with a broader range was amended to only recite the broader range and new claims 35 and 36 now recite the preferred range as separate dependent claims. Therefore, the objection to claims 14 and 15 for the recitation of a broad range together with a narrow range that falls within the broad range in the same claim should be withdrawn in light of applicant's amendments to claims 14 and 15. It is not believed that any new matter was introduced by these amendments, and that no additional search is required by the office.

Applicant hereby authorizes the Commissioner to charge a fee of thirty-six dollars ($ 36.00) to deposit account number 03-2060 for the two new dependent claims added by this amendment. The Commissioner is hereby authorized to credit any overpayments or charge any additional fees or underpayment of fees to Deposit Account 03-2060.

PAGE 6/14 * RCVD AT 8/13/2004 10:20:33 AM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/0 * DNIS:8729306 * CSID:704 331 7707 * DURATION (mm-ss):04-24

Claims 13 and claims dependent thereon were rejected under 35 U.S.C. §102(b) as being anticipated by, or, in the alternative, under 35 USC §103(a) as being unpatentable over EP 203554 A('554). The rejection of claim 13 under 35 U.S.C. §102(b) as being anticipated by, or, in the alternative, under 35 USC §103(a) as being unpatentable over EP 203554 A('554) should be withdrawn for the reason that the '554 reference provides a disclosure of a conventional method for a terpolymer of ethylene, diisobutylene, and vinyl acetate, and Applicant's terpolymer differs from the terpolymer of the '554 reference by the use of Applicant's critical process steps which imparts some structural difference to the terpolymer of the instant invention compared to the terpolymer the '554 reference. The '554 produces the terpolymer in a conventional manner and is silent on any process steps related to a tubular reactor with side branches for the introduction of monomers into the reactor. Applicant has indicated that such process steps are critical to obtaining the benefit of the instant invention.

Applicant's invention relates to a terpolymer which when produced by applicant's tubular reactor having at least one side branch for introducing fresh monomer result in terpolymers that exhibit unexpectedly superior cold flow properties which are not obtainable in any other way. Terpolymers produced in tubular reactors without such side branches do not possess the surprising properties of applicant's terpolymers in the improvement of the cold flow properties of distillate fuel oils. Evidence of these unexpected terpolymer cold flow properties were submitted to the office in a related case, Application Serial Number 09/956,544, filed September 18, 2001, and issued as US 6,762,253 B1 on 7/13/2004, of which this case is a continuation. In a declaration under 37 CFR §1.132 filed on 8 May 2003, by the inventor, Dr. Krull, a direct comparison was made between terpolymers of the prior art made in conventional reactors with terpolymers produces in the tubular reactor of the instant invention. A copy of the abovementioned Declaration by Dr. Krull is attached to this response. In the declaration, Dr. Krull states that a critical aspect of the invention is that the terpolymer is produced by applicant's tubular reactor which has at least one side branch for introducing fresh monomer during the process of producing the terpolymer. In Table 3 of the Declaration, reproduced

PAGE 7/14 * RCVD AT 8/13/2004 10:20:33 AM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/0 * DNIS:8729306 * CSID:704 331 7707 * DURATION (mm-ss):04-24

hereinbelow, the filterability and cold flow properties of fuel treated with the terpolymers of the instant invention and comparative conventionally produced terpolymers were presented along with blank sample of fuel oil.

Table 3

Terpolymer	ADT	CFPP with 100 ppm	CFPP with 200 ppm	CFPP with 300 ppm
Blank (no terpolymer added)	4.2	-1°C	-1°C	-1°C
Example A	6.8	-11C	-15°C	-17°C
Example B	7.9	-9°C	-13°C	-16°C
Comparative Example C	45	-7°C	-12°C	-15°C
Comparative Example D	52	-8°C	-11 °C	-14°C
Comparative Example E	7.2	-3°C	-4°C	-6°C

The terpolymers of the instant invention(Example A and Example B) showed dramatically improved solubility (ADT) and superior cold flow properties as cold filter plugging point (CFPP) over the terpolymers of the prior art. Comparative Example D is a terpolymer based on 4-methyl-1-pentene which would be similar to a terpolymer prepared from diisobutylene, differing only by 2 carbon atoms. Diisobutylene is a C8-monomer (prepared by dimerizing isobutylene), containing mainly 2,4,4-trimethylpentene-1, while 4-methyl-1-pentene is a C6-monomer (dimerized propene). As shown in Table 3, the solubility or ADT for Terpolymer D was considerably higher than an acceptable value of 25 and the CFPP performance was poorer that Example B which was the same composition, differing only by the production method of the instant invention. Thus, any one skilled in the art would conclude that Applicant's process clearly provides structural features in the terpolymer which are not obtainable and could not be formed by the conventional processes such as disclosed in the prior art represented by EP 203554 A. Therefore, the rejection of claim 13 and its dependencies under 35 U.S.C. §102(b) as being anticipated by EP 203554 A('554) should be withdrawn for the reason that in order for a patent to anticipate an invention, it is necessary that all of the elements of the invention or their equivalents be found in one single structure or description, where they do substantially the same work in substantially the same way. The '554 reference is silent on Applicant's critical process steps which Applicant has demonstrate

PAGE 8/14 * RCVD AT 8/13/2004 10:20:33 AM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/0 * DNIS:8729306 * CSID:704 331 7707 * DURATION (mm-ss):04-24

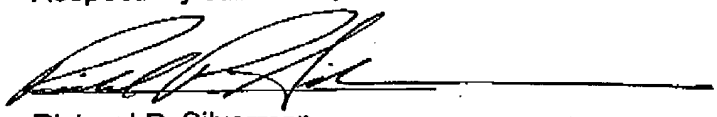
unexpected results in a terpolymer having different structure as evidenced by different cold flow and solubility properties. Such differences are the direct result of applicant's process steps.

The rejection of claim 13 and its dependencies under 35 USC §103(a) as being unpatentable over EP 203554 A('554) should be withdrawn for the reason that as shown hereinabove, the terpolymer of the instant invention structurally differs from the terpolymer of the '554 reference as evidenced by the showing hereinabove of unexpected improvement in solubility and cold flow properties for terpolymers produced in the manner of the instant invention which employed the critical process step of producing the terpolymer in a tubular reactor that has side branches for introducing monomer as recited in claim 13.

It is respectfully submitted that, in view of the above remarks, the rejections under 35 U.S.C. §112 and §103 should be withdrawn and that this application is in a condition for an allowance of all pending claims. Accordingly, favorable reconsideration and an allowance of all pending claims are courteously solicited.

An early and favorable action is courteously solicited.

Respectfully submitted,



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Attachments:
Declaration under 37 CFR §1.132 filed 8 May 2003 in Application 09/956,544

PAGE 9/14 * RCVD AT 8/13/2004 10:20:33 AM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/0 * DNIS:8729306 * CSID:704 331 7707 * DURATION (mm-ss):04-24